Perceived Safety, Quality, and Cultural Competency of Maternity Care for Culturally and Linguistically Diverse Women in Queensland

Sarah Mander[1], Yvette D Miller[2*]

[1]School of Psychology, The University of Queensland, St Lucia QLD, 4072, Australia

[2]School of Public Health & Social Work, Queensland University of Technology, Kelvin Grove QLD 4059, Australia

[*]Corresponding author

Associate Professor Yvette D Miller
School of Public Health & Social Work
Queensland University of Technology
Victoria Park Rd, Kelvin Grove, 4059, QLD, Australia
Tel: +61 422 987 246
Fax: +61 7 3138 5880
Email: yvette.miller@qut.edu.au

Abstract

Various policies, plans, and initiatives have been implemented to provide safe, quality, and culturally competent care to patients within Queensland's healthcare system. A series of models of maternity care are available in Queensland that range from standard public care to private midwifery care. The current study aimed to determine whether identifying as Culturally or Linguistically Diverse (CALD) was associated with the perceived safety, quality, and cultural competency of maternity care from a consumer perspective, and to identify specific needs and preferences of CALD maternity care consumers. Secondary analysis of data collected in the Having a Baby in Queensland Survey 2012 was used to compare the experiences of 655 CALD women to those of 4049 non-CALD women in Queensland, Australia, across three stages of maternity care: pregnancy, labour and birth, and after birth. After adjustment for model of maternity care received and socio-demographic characteristics, CALD women were significantly more likely than non-CALD women to experience suboptimal staff technical competence in pregnancy, overall perceived safety in pregnancy and labour/birth, and interpersonal sensitivity in pregnancy and labour/birth. Approximately 50% of CALD women did not have the choice to use a translator or interpreter, or the gender of their care provider, during labour and birth. Thirteen themes of preferences and needs of CALD maternity care consumers based on ethnicity, cultural beliefs, or traditions were identified, however, these were rarely met. Findings imply that CALD women in Queensland experience disadvantageous maternity care with regards to perceived staff technical competence, safety, and interpersonal sensitivity, and receive care that lacks cultural competence. Improved access to support persons, continuity and choice of carer, and staff availability and training is recommended.

Keywords: CALD, maternity care, consumer evaluation, survey, consumer experience

Introduction

According to the Australian Charter of Healthcare Rights, patients of the Australian health system can expect the right to: access, safety, respect, communication, participation, privacy, and comment [1]. Culturally and linguistically diverse (CALD) individuals (who identify as having certain cultural or linguistic affiliations by virtue of their place of birth, ancestry or ethnic origin, religion, or preferred or spoken language) are generally underserved by health services, experience an unequal burden of disease, confront cultural and communication barriers to accessing appropriate services, and receive a lesser quality of care than the remainder of the population [2-8]. Cultural competency is a common approach to promoting better health for service users from CALD and other minority groups [8, 9].

A culturally competent health care provider is one who has obtained knowledge and awareness of other cultures, and has refined their skills to work effectively with individuals from these cultures [10]. This approach assumes that increasing care providers' knowledge about the diversity of cultural practices will improve care for individuals from CALD backgrounds [11]. However, it is commonly criticised for presuming a quantifiable amount of knowledge or skills that is appropriate and for rectifying rather than embracing differences [4, 12, 13]. Cultural safety builds from cultural competency through celebration and accommodation of differences [4]. It occurs within caring spaces wherein service users feel able to safely express and share their identity [14-16]. When the cultural identity and wellbeing of a person is in any way diminished, demeaned, or disempowered, care is considered culturally unsafe. Importantly, it is the service users themselves, rather than the care providers, who define cultural safety of health services [17]. We need to evaluate indicators of safety and quality of maternity care from the perspective of CALD consumers as the experts in their own individual preferences, needs, and experiences.

Relevant Frameworks and Policies

Queensland is a culturally and linguistically diverse state of Australia. In 2006 17.9% of Queenslanders were born overseas and 7.9% spoke a language other than English at home [18]. A range of policies, plans, and initiatives have been developed with the aim of improving and maintaining the health and wellbeing of multicultural families, communities, and individuals within Queensland, as well as increasing organisational cultural competency. Specifically, the Queensland Government has produced the "A Multicultural Future for All of Us" Queensland Multicultural Policy 2011 and Queensland Government Language Services Policy, as well as the associated Queensland Multicultural Action Plan 2011-2014. To implement these policies effectively in hospital and health care, Queensland Health published the Guideline for Multicultural Health Policy Implementation [19], which provides best practice recommendations for planning, delivering, and implementing health services for CALD consumers.

Professional interpreter services should be used for consumers who are not proficient in English and be administered in compliance with the Queensland Language Services Policy 2011 to ensure that patients are provided with equitable access to responsive and high quality services [18]. According to the Queensland Health Working With Interpreters Guidelines [20], a professional interpreter should be engaged by staff when: the information to be communicated to the patient is significant for their health and the person's English skills are assessed as inadequate for properly understanding the situation or the instructions given, the person has a Queensland Government interpreter card, or the person requests an interpreter. Health information should be provided to CALD consumers in a format that is meaningful and easy to understand.

With particular regard for maternity care, Queensland Health included a guide to Cultural Dimensions of Pregnancy, Birth and Postnatal Care within the Multicultural Clinical Support Resource [21] that addresses issues affecting health care provision for CALD

consumers. The guide includes practical advice, information on common preferences or needs, as well as a list of questions that should form the cultural assessment of a patient to allow for informed decision making (i.e., presence of need for an interpreter, preference for gender of health care providers, and cultural practices to be aware of in providing care). Routine care delivery in Queensland requires clinicians to complete a 'Pregnancy Health Record' with women during their first antenatal appointment. Women's responses to questions concerning religious, ethnic, or cultural considerations, as well as country of birth, ethnicity, and interpreter requirement contained within this document allow for the identification and recording of CALD status.

Indicators of Perceived Safety, Quality, and Cultural Competency for CALD Women

Perceived Safety

Within maternity care, safety refers to a woman's perceived absence of risk to herself and her baby [22]. While the need for safety is universal, the components of safety or means to which it can be achieved differ based on cultural backgrounds and beliefs [23]. Indicators of safety in maternity care include perceptions of *staff technical competence* and *control*.

The extent to which women perceive their health providers to be technically competent is known to impact on their satisfaction and feelings of safety [22, 24, 25]. However, women from minority cultural or ethnic groups may be less likely to have confidence and trust in staff and more likely to perceive their practitioner as lacking in competence, than other women [24, 26, 27]. Whether CALD identification differentially affects perceptions of maternity care staff's technical competence in Queensland is unknown.

Control refers to a woman's perceived ability to regulate choices and decisions, exercise autonomy over her circumstances, and avoid harm throughout her maternity care [28]. Involvement in decision-making and provision of choice allows women to assume some degree of control over their maternity care experience. This perceived control has been identified as a dimension of care known to impact women's satisfaction with their care [29].

Quality

Quality of maternity care refers to the substance and standard of care provision, which may be indicated by consumer's experiences of *communication*, *interpersonal sensitivity*, and *respect*. Johnstone and Kanitsaki [30] found that a large proportion of patient's sense of safety was underpinned by communication processes. Effective communication of evidence-based information allows women to be active participants in their maternity care to the extent they desire, and has been identified as of primary importance to women [25, 31]. When a patient's first language or language spoken at home is not the prevalent language of the healthcare system, access to, and provision of, services are easily compromised [32] Language barriers can lead to noncompliance, feelings of fear and despair, and problems building rapport [33]. English proficiency is also independently associated with adverse health outcomes, preventable medical errors, and consistent reports of poorer care experiences [18, 34]. In a study of Vietnamese, Turkish, and Filipino women's birth experiences in Australia, women with lower English language proficiency were much less positive about many aspects of their care; indicating the importance of a woman's ability to communicate freely with care providers for maternity care satisfaction [11]. No studies have been conducted to directly compare the quality of communication for CALD and non-CALD maternity care consumers.

The interpersonal manner of care providers also influences women's satisfaction with maternity care received [35]. Studies with women from different cultural and ethnic groups have identified that perceived positive interactions are those wherein genuine empathy and sensitivity to pain experienced are expressed, feelings of loneliness and worry are diminished, concerns raised are taken seriously, and support is perceived as "human" [24-26, 28, 31]. Alternatively, negative interactions are those wherein care is perceived to be rushed, unkind, or unsupportive [11]. In a 2010 population-based survey conducted in Queensland, Hennegan, Redshaw, and Miller [36] found that women born outside of Australia were more likely to

feel rushed or hurried by staff during their recent labour and birth. However, the extent to which women experience interpersonal sensitivity across all three stages of maternity care (including pregnancy and after birth) and on other indicators of quality of care remains unknown. Furthermore, the data collected from women in previous research [36] preceded current relevant policies and guidelines, so these findings may not reflect improvements in contemporary consumer experiences since policy implementation.

Quality care also involves the integration of cultural understanding into services to treat women with respect [30, 37]. Preserving dignity and privacy, familiarity with cultural practices, awareness of different expectations for care, and being treated as an individual are important considerations for demonstrating respect [11, 23, 26, 28]. A large majority of Somali women surveyed by Chalmers and Hashi [24] reported that their care providers indicated a lack of respect for their cultural practices through verbal and non-verbal expressions of disgust and surprise. Respectful care involves establishing what matters to each individual woman, what she values, and recognition of what she wants, rather than forcing compliance with unfamiliar treatments and care practices [30, 31]. There has not previously been an opportunity for CALD women in Queensland to express their perceptions of respect within maternity care, and their experiences of respect have never been compared to those of non-CALD women.

Cultural Competency

Indicators of cultural competency of care overlap with those of perceived safety and quality, but require specific consideration due to their status within various targetable policies of the current health system. Key additional indicators of cultural competency for CALD maternity care consumers include *access to interpreters*, *access to choice of gender of care provider*, and consideration of *preferences and needs*.

The availability and provision of professional interpreters allows CALD consumers to engage in integral communication and informed decision-making [18], and lack of

appropriate interpreter service use has been associated with adverse health outcomes [38]. Two systematic reviews revealed that professional interpreter usage improved communication, clinical outcomes, patient satisfaction and quality of care, and reduced medical testing, errors, costs and risk of hospitalisation [34, 39]. It is not known whether guidelines concerning the use of interpreters for CALD patients are currently being adhered to in maternity care delivery in Queensland.

It is recognised that some CALD women may prefer to be cared for by females based on cultural or religious beliefs [20]. Guidelines for informed decision-making in healthcare recommend that these wishes are accommodated where possible [40]. Hennegan and colleagues [36] found that women born outside Australia were less likely to be able to choose the gender of their labour and birth carer when they wanted to. However, whether CALD women are currently provided access to this indicator of cultural competency across other stages of maternity care remains unknown.

Ethnocultural beliefs and customs may influence maternity care preferences and needs for CALD women. The conceptualization of maternity care and health care more generally is based on socialisation processes, and thus will differ between cultures and individuals [28]. For example, sub-Saharan African women in Australia may not be comfortable with pain relief injections, believing that it disrupts normal events and that labour pain is necessary for an uninterrupted natural birth process [41]. Other cultural groups may believe that pain relief will cause harm or produce strange characteristics for the baby, or show strong resistance to caesarean sections [28, 42]. Cultural or ethnic beliefs may also influence preferences or needs for nutrition or bathing practices throughout the perinatal period [11, 28, 41]. Small and colleagues [11] observed that while care providers were aware of some practices and preferences associated with particular cultural or ethnic groups, they rarely asked women about their individual preferences. The range and provision of CALD women's maternity care preferences and needs within Queensland are currently unknown.

Aims of this study

Despite the presence of Queensland Government guidelines, the extent to which the health care experiences of CALD maternity care consumers in Queensland are of comparable perceived safety and quality to those of women who do not identify as CALD remains unknown. Further, the rates of experiencing other, specific aspects of culturally competent care for CALD consumers in Queensland are yet to be established. This study aimed to determine associations between CALD identification and the perceived safety, quality, and cultural competency of maternity care experienced by women. More specifically, the current study aimed to address the following research questions:

1. Do women who identify as being from a CALD background experience suboptimal maternity care across indicators of perceived safety and quality in Queensland, compared with non-CALD women?
2. To what extent do CALD consumers experience other features of culturally competent care?
3. What are the specific maternity care preferences or needs based on ethnicity, cultural beliefs or traditions, among CALD women in Queensland?

Methods

Participants and Sampling

This study involved secondary analysis of data collected in the Having a Baby in Queensland Survey 2012 [43, 44], a population-level retrospective cross-sectional study of women's experience across three stages of care: pregnancy, labour and birth, and after birth, in Queensland, Australia. Women who gave birth in Queensland between October 2011 and January 2012 were mailed a copy of the survey via the Queensland Registry of Births, Deaths, and Marriages, three to four months after birth. Women with a stillbirth or neonatal death were invited to complete a different, tailored survey. Women whose babies had died more

than 28 days after birth, and those without an up-to-date postal address listed, were excluded. Two weeks after mailing the survey package, reminder/thank you postcards were sent out to women in the live singleton and multiple samples (excluding those who experienced a neonatal death). Tailored reminders based on whether women had responded to the survey could not be sent as women's details were not released by the Registry of Births, Deaths and Marriages, and consequently could not be checked against the surveys returned to the QCMB. All survey packages and postcards were addressed and sent by post from the Registry of Births, Deaths and Marriages to protect confidentiality and anonymity. For women who had a multiple birth, data from the first twin or triplet born was provided. The survey could be completed on paper (returned via mail with provided reply-paid envelope), online, or over the telephone with a trained female interviewer and translator if required. Instructions for survey participation and completion were provided in English and 19 other languages.

The usable response rate for women who had a live birth was 30.4% (5,840 out of 19,194). The respondent sample was largely representative of all birthing women in Queensland (based on 2010 population data) in terms of method of birth, previous caesarean, plurality of pregnancy, health district of residence, premature births, and infant birth weight. Aboriginal and/or Torres Strait Islander women, women aged less than 20 years, and women who gave birth in public facilities were underrepresented by the respondent sample [45]. Comparisons between the respondent sample and the Queensland birthing population have been reported in full elsewhere (see [45]). The current study analysed responses from women who provided a response to the survey items used to determine CALD identification, did not identify as Aboriginal and/or Torres Strait or South Sea Islander, and had no missing data for the dependent variables under examination.

Measures

CALD identification. Responses to three survey items ("Where were you born?"; "Do you identify with any cultural group(s) or ethnicity?"; "What language(s) do you speak at

home?") were used to derive CALD identification. Reported countries of birth were re-coded as being either English-speaking or non-English speaking based on whether English was regarded as an official language within the country. Women who were born in a non-English speaking country, identified with a cultural group or ethnicity, or spoke a language other than English at home were included in the CALD sample. Input was sourced from the Ethnic Communities Council of Queensland to determine the appropriateness and relevance of these identifiers of CALD to the Queensland population. On the basis of this input, women identifying as Aboriginal, Torres Strait Islander, or South Sea Islander were not included within the current study, as these women are not representative of either CALD or non-CALD identification in existing relevant policy frameworks and the research questions under investigation.

Staff technical competence. For each stage of care (i.e., pregnancy, labour and birth, and after birth), participants indicated how often their care providers communicated well with other care providers, worked well as a team, and how often they felt confident in the skills of their care providers. Responses for each stage of care were made on 4-point scales (1 = *Not at all*; 4 = *All of the time*) and averaged across items to derive a measure of staff technical competence. Higher scores indicated greater perceived staff technical competence. The scale demonstrated good internal consistency for each stage of care (αs > .78). For this scale and others reported, internal consistencies were measured using SPSS reliability analyses wherein all items pertaining to the scale were entered to produce a Cronbach's alpha.

Control. Participants indicated how often they knew what was happening and felt in control during each stage of care. Responses for each stage of care were made on 4-point scales (1 = *Not at all*; 4 = *All of the time)* and averaged across items to derive a measure of perceived control. Higher scores indicated greater perceived control. The scale demonstrated good internal consistency for each stage of care (αs > .74).

Overall perceived safety. Participants indicated how often they felt safe during each stage of care on 4-point scales (1 = *Not at all*; 4 = *All of the time*). Higher scores indicated greater levels of perceived safety.

Communication. Participants indicated how often their care providers talked to them in a way they could understand and were open and honest, and how often they felt comfortable asking questions, during each stage of care. Responses for each stage of care were made on 4-point scales (1 = *Not at all*; 4 = *All of the time*) and averaged across items to derive a measure of perceived communication. Higher scores indicated better perceived communication. The scale demonstrated good internal consistency for each stage of care (αs > .80).

Interpersonal sensitivity. Participants indicated how often their care providers genuinely cared about their wellbeing and treated them with kindness and understanding, and how often they felt like their care providers were on their side and how often they wished their care providers had more time to talk, during each stage of care. Responses for each stage of care were made on 4-point scales (1 = *Not at all*; 4 = *All of the time)* and averaged across items to derive a measure of interpersonal sensitivity (latter item reverse-scored). Higher scores indicated better perceived interpersonal sensitivity. The scale demonstrated good internal consistency for each stage of care (αs > .73).

Respect. Participants indicated how often their care providers treated them with respect, treated them as an individual, respected their privacy, and respected their decisions, during each stage of care. Responses were made on 4-point scales (1 = *Not at all*; 4 = *All of the time)* and averaged across items to derive a measure of respect. Higher scores indicated greater perceived respect. The scale demonstrated good internal consistency for each stage of care (αs > .82).

Overall quality of care. Participants were asked, "Overall, how well were you looked after by your care provider(s)?", during each stage of care. Responses were made on 5-point

scales (1 = *Very badly*; 5 = *Very well*), with higher scores indicating greater overall quality of care.

Binary coding of indicators of perceived safety and quality of care. To determine associations between CALD identification and suboptimal care, the scale scores for each indicator of perceived safety and quality of care were dichotomised using a *top-score* approach [46, 47]. Optimal care was defined as being cared for *very well* or experiencing positive elements of care *all of the time*. A lower score indicated room for improvement, and thus suboptimal level of care. Prior to analyses, the scale scores for all outcome variables (staff technical competence, control, overall perceived safety, communication, interpersonal sensitivity, respect, and overall quality of care) for each stage of care were re-coded as either: *did not receive suboptimal care* (0) or *received suboptimal care* (1).

Access to interpreters. Participants were asked, "Could you choose to have a translator or interpreter during labour/birth?". The four response options provided were: "Yes", "No, but I didn't need / want one", "No, but I wanted one", and "Not sure".

Access to choice of gender of care provider. Participants were asked, "Could you choose whether your care provider(s) for labour and birth was/were male or female?". The four response options provided were: "Yes", "No, but I didn't want to", "No, but I wanted to", and "Not sure".

Preferences and needs. Participants were asked, "Did you have any preferences or needs in pregnancy, labour, birth or after birth based on your ethnicity, cultural beliefs or traditions?". Affirmative respondents were prompted to describe these in an open-ended manner, and then rated how often these preferences or needs were met by their care provider(s) on a 4-point scale (1 = *All of the time*; 4 = *Never*).

Model of care. Previous work utilising key items from the Having a Baby in Queensland Survey 2012 established a coding algorithm to systematically measure the model of maternity care that participants received [48]. The algorithm placed each survey participant

into one of five discrete categories for model of care (*Standard public care*; *GP shared care*; *Midwifery continuity care*; *Private obstetric care*; *Private midwifery care*).

Socio-demographic characteristics. Participants' reported number of prior births was used to assess parity (primiparous or multiparous). Women's age at birth was calculated from participants' reported date of birth and the date of their baby's birth. Remoteness of usual place of residence was derived by subjecting participants' recorded town or suburb to the Accessibility/Remoteness Index of Australia (ARIA+) classification system (*Major city; Inner regional; Outer regional; Remote*/*Very remote)*. Participants' reported highest level of education was dichotomised to reflect whether women had completed secondary education (i.e., those who had completed 12 years of formal education or an equivalent level) or not (i.e., those who had no formal qualifications, were still at school, or did not complete 12 years of education).

Analytic Strategy

Chi-square analyses were conducted to compare CALD and non-CALD women on socio-demographic characteristics and model of care received. A series of binary logistic regression analyses were conducted to determine associations between CALD identification and indicators of perceived safety and quality of care for each stage of care. These regression models were repeated adjusting for model of care and then with subsequent additional adjustment for socio-demographic characteristics (to account for confounded associations between CALD identification and indicators of perceived safety and quality). Significance for all analyses was set at $p < .05$. Descriptive analyses were conducted to determine the prevalence of access to interpreters and choice of gender of care provider among CALD women, and how often specific preferences and needs related to ethnicity, cultural beliefs or traditions were met. Qualitative thematic content analysis was conducted to describe the self-reported preferences and needs of CALD maternity care consumers.

Results

Sample Characteristics

The final sample included 4,704 women. Figure 1 demonstrates the flow of respondents through each exclusion criterion. Excluded women were less likely than included women to have completed secondary education (87.95% vs. 91.97%), χ^2 (1) = 15.37, $p < .001$, were slightly younger (M = 30.02, SD = 5.63 vs. M = 30.53, SD = 5.24), χ^2 (5) = 22.67, $p <$ .001) and were less likely to be primiparous (36.6% vs. 47.2%; χ^2 (1) = 12.23, $p < .001$).

[INSERT FIG 1 ABOUT HERE]

The sample included 655 CALD women whose experiences were compared with that of non-CALD women (n = 4,049). The majority of women in the total sample were multiparous, had a singleton birth, lived in a major city, and completed the survey via mail (remainder completed online; see Table 1). Within the CALD sample, 479 women reported being born in a country other than Australia, 342 spoke only English at home, and 373 identified with a cultural or ethnic group (190 of which were not born in a non-English speaking country and did not report speaking a language other than English at home).

[INSERT TABLE 1 ABOUT HERE]

CALD women were more likely to be primiparous, live in a major city, and to have been 30 years of age or more at the time of their birth, and were less likely to receive a private obstetric care model of care than non-CALD women (see Table 1).

Associations Between Model of Care and Perceived Safety and Quality of Care

The provision of suboptimal perceived safety and quality of maternity care differed significantly across models of care, for each stage of care (data not shown). Given the

significant differences between CALD and non-CALD women in the model of care received and significant associations between model of care and indicators of perceived safety and quality of care, binary logistic regression models used to determine associations between CALD identification and perceived safety and quality of care were also conducted with simultaneous adjustment for model of care. Given the differences between CALD and non-CALD women in several socio-demographic characteristics (see Table 1), a second multivariate model was conducted that simultaneously adjusted for socio-demographic characteristics (parity, maternal age at birth, remoteness and secondary education) in addition to model of care.

Associations Between CALD Identification and Perceived Safety and Quality of Care

Perceived Safety. After adjustment for model of care and socio-demographic characteristics, CALD women had 1.30 (95% CI 1.07-1.59) the odds of perceived suboptimal staff technical competence in pregnancy than non-CALD women (Table 2). After adjustment for model of care the odds of suboptimal perceived safety were significantly higher for CALD than non-CALD women for pregnancy (1.38; 95% CI [1.14, 1.67]), labour and birth (1.30; 95% CI [1.08, 1.57]), and after birth care (1.27; 95% CI [1.06, 1.54]). Only the association between CALD status and suboptimal perceived safety during after birth care were accounted for by socio-demographic characteristics. CALD identification was not significantly associated with sense of control during any stage of care after adjustment for potential confounders, although CALD women were significantly more likely to report suboptimal control during pregnancy before adjustment for model of care (see Table 2).

[INSERT TABLE 2 ABOUT HERE]

Quality. CALD women were more likely to report suboptimal overall quality of care in pregnancy and after birth than non-CALD women in the univariate models, but these differences were accounted for by model of care (see Table 3). After adjustment for model of care and socio-demographic characteristics, CALD women had higher odds of suboptimal

interpersonal sensitivity in pregnancy (OR:1.22; 95% CI [1.01, 1.50]) and in labour and birth (OR:1.34; 95% CI [1.11, 1.61]) than non-CALD women (see Table 3).

[INSERT TABLE 3 ABOUT HERE]

Cultural Competency in Maternity Care Provision for CALD Women

Half (49.8%) of all CALD women reported not having the choice to use a translator or interpreter during labour and birth, 22.6% reported they did have the choice, and 27.3% were not sure. Similar rates were found for choice of gender of care provider for labour and birth: 54.2% of CALD women stated that they did not have a choice, 19.2% stated that they did have a choice, and 26.6% were not sure.

Maternity Care Preferences and Needs of CALD Women

One tenth (10.4%) of CALD women stated that they had preferences or needs in pregnancy, labour and birth, or after birth based on their ethnicity, cultural beliefs, or traditions (n = 68). Descriptions of preferences and needs were grouped into thirteen themes based on their content: *Inclusion of significant others, Birth choices, Communication, Gender of carer, Privacy, Ultrasound scans, Blood products, Food and drink, Placenta, Body alterations, Religious dedication, Bathing,* and *Confinement*.

Inclusion of significant others. A number of women reported preferences and needs concerning the presence and involvement of their family members during their maternity care. In particular, women stated they would prefer a family member to stay with them overnight while in hospital.

"It would be great if my support people can stay overnight in the hospital with me."

Birth choices. Some women reported preferences concerning their birth choices. These referred to the location of their birth, as well as the acceptability of type of birth or medical intervention.

"Woman can choose, public or private, to have caesarean."

Communication. Women's responses revealed two sub-categories of preferences and needs related to communication: *interpreters* and *education*. Some of the women reported that they needed to have an interpreter present throughout their maternity care to communicate in their own language.

One woman described her need for communication of information and education from her care providers.

> *"In Denmark there is a strong tradition of educating and informing patients, clients – anyone who uses the health service. The approach is extremely client-focused. It is always the health professional's responsibility to lead the patient through his/her admissions. I needed this during my labour. If my midwife had informed me about what was going on, had educated me and had met me as an individual I would have had a completely different experience…"*

Gender of carer. A number of women responded that they had preferences and needs for female doctors, midwives, and other staff members.

> *"Female only in room unless life threatening."*

Privacy. Maintaining an element of privacy and modesty was important to some women, particularly during labour and when female staff were not available.

> *"I prefer to have female staff everywhere for me or else I like to cover myself including face."*

Ultrasound scans. Some women reported that they had a preference or need that related to receiving ultrasound scans (USS) when they believed necessary.

> *"Have USS on almost every visit to Obstetric Clinic."*

Blood products. The refusal of blood products and blood transfusions throughout maternity care was reported by women identifying as Jehovah's Witness.

> *"As Jehovah's witness we do not accept any blood or blood products."*

Food and drink. A large proportion of women reported specific preferences or needs that involved food or drink requirements throughout the perinatal period. These preferences and needs comprised four sub-categories: *traditional medicine, halal, temperature*, and *soup*.

A number of respondents reported needing to be provided with Halal food during their hospital stay, while others described their desire to adhere to traditional medicine regimes as a part of their maternity care.

"Being given herbs and medication for recovery which was easily available back in Brunei."

Some of the women reported requiring food and water that was not chilled during their hospital stay, and at particular times after birth (e.g., feeding time).

"In Chinese culture, women can only drink warm water. However, there was only cold water available from hospital."

Some women reported that they would consume soup as their main or only source of food after birth.

"In my culture, after birth, it is necessary for the mother to eat only chicken soup and rice for a whole month as it is believed to help with recovery and strength."

Placenta. A large number of women reported preferences and needs related to their placenta. While some stated they simply wanted to take the placenta home with them, others described specific plans including burial.

"The afterbirth we bury back into the earth; I pray, sing, and a fruit tree is buried on top."

Body alterations. A few women reported preferences and needs after birth that involved body alteration for themselves (e.g., physique maintenance), their child (e.g., circumcision and ear piercing), or both (e.g., banding).

"Band on the waist for me and my baby (after birth tradition)."

Religious dedication. Some women described after birth needs involving dedication to their religion, such as provision of baptism, prayers, or singing.

"Quran to be recited in baby's ear immediately."

Bathing. A few preferences and needs stated by women were related to bathing practices. While some women stated they would not bath for two weeks to three months after birth, others stated they would only bathe in warm water.

"After birth, can't take shower or bath and wash your hair for 30 days."

"Some believe you should not have a cold shower as it would harm your internals for the rest of your life."

Confinement. With particular regards to the after birth period, a number of women reported observing confinement rules that typically involve the mother and baby remaining inside the home for approximately one month, without working or receiving visitors, and may also include being cared for by a more experienced woman.

"After birth we hire a confinement lady to help in taking care of the new baby. This lasts for 30 days. We call it confinement month. It helps a lot as new mums learn from more experienced lady and new mum is less stressed because there is always help."

"Mothers and babies usually stay at home for the first 3 weeks after birth. This helps the mother recover and helps keep the baby safe from the outside environment."

Provision of Maternity Care Preferences and Needs of CALD Women

The extent to which each theme of preference or need was met all of the time can be seen in Figure 2. There were no cases for which preferences or needs relating to inclusion of significant others, privacy, ultrasound scans, food temperature requirement, and bathing were met all of the time. Blood product preferences or needs were met all of the time for both cases where this was reported as a preference or need.

[INSERT FIGURE 2 ABOUT HERE]

Discussion

This study aimed to determine whether CALD identification was associated with the perceived safety, quality, and cultural competency of maternity care provision from a consumer perspective, and to identify the specific preferences and needs of CALD maternity care consumers. Even after adjustment for model of care and socio-demographic characteristics, CALD women were significantly more likely than non-CALD women to perceive suboptimal: staff technical competence in pregnancy, overall safety in pregnancy and in labour and birth, and interpersonal sensitivity in pregnancy and in labour and birth. These findings suggest that despite current initiatives to promote equality of care, CALD women experience disadvantageous maternity care with regards to their perceptions of staff technical competence, perceived safety, and interpersonal sensitivity. Further, these discrepancies remain even after accounting for differences between CALD and non-CALD women in the model of care received and socio-demographic characteristics. The similarity of findings presented here and in the paper by Hennegan et al [36] concerning suboptimal perceived interpersonal sensitivity during labour and birth indicates that recent policy implementation has not improved consumer experiences in this area.

The maternity model of care received differed between CALD and non-CALD women; CALD women received private obstetric care less often than non-CALD women. Initial significant differences between CALD and non-CALD women on some indicators of perceived safety (e.g., staff technical competence in labour and birth, perceived control during pregnancy) and quality of care (e.g., interpersonal sensitivity after birth, overall quality of care in pregnancy and after birth) were no longer apparent after accounting for variations in model of care. Therefore, providing CALD women with the same models of care as non-CALD women may reduce differences between these two groups on some, but not all,

indicators of perceived safety and quality of maternity care. The findings also indicate that there is something about the models of care that determine whether optimal levels of care on indicators of perceived safety and quality are achieved. Private obstetric models of care tended to be associated with lower odds of suboptimal care in this study, and in previous analyses with this survey population [45]. This model of care uniquely provides women with choice and continuity of carer in a private health system. A consistent, continuous relationship with the same care provider has previously been demonstrated to improve a woman's sense of preparedness, confidence, trust, communication, and subsequent satisfaction with her maternity care [49-51]. Thus, it is recommended that efforts are taken to provide CALD women with continuity of carer throughout their pregnancy, labour and birth, and after birth care to improve their perceptions of safety and staff technical competence. Increased access to private obstetric models of care, or the integration of choice and continuity of care providers into other models of maternity care, may improve indicators of care for all maternity care consumers, irrespective of their CALD identification or model of care received.

The finding of an association between CALD identification and model of care received may indicate inequality in the availability of specific models. Stevens and colleagues [48] reported that assumptions regarding women's health sector influenced the content of their General Practitioner's discussions concerning models of care. Specifically, women with private health insurance were more likely to have private obstetric care discussed than women without insurance, despite the option of the latter to pay for this independently. It may be that CALD women are less likely to be informed about private models of care available to them on the basis of assumed, or realistic, financial barriers to private healthcare. Health professionals should engage in unbiased discussion of all models of care, without dichotomisation of private and public sectors [48].

Multidisciplinary hospital staff have previously reported that they commonly lack confidence in caring for CALD women [49]. Staff competence in delivering maternity care to

CALD women could be improved through further training comprising dynamic and interactive practical skill sessions (rather than passive educational seminars), as well as in-services wherein medical teams could practice together to improve their confidence [11, 49, 52]. Elements of the organisational environment of maternity care settings may also require review. Nurses and midwives have reported that large amounts of compulsory administrative tasks were the main barrier in their provision of practical and emotional support to women, and restricted their ability to deliver quality maternity care [53]. The extent to which a health organisation empowers and encourages autonomy of its workers has also been associated with perceptions of staff competence and interpersonal sensitivity, and should be assessed in future studies on quality of care for CALD women [22, 54].

Increasing access to support persons is also recommended to improve CALD women's perceptions of safety throughout maternity care. A number of studies have demonstrated the positive impact of presence of a significant other on women's labour and birth experience [25, 55-57], and after-hours presence of support persons emerged as a key need of CALD women in this study and in other qualitative analyses not considering CALD identification [58]. However, the provision of support and companionship by friends and family can be limited by hospital visiting hour restrictions [25]. Some of the preferences and needs reported by CALD women in this study are also common among non-CALD women, suggesting that improved provision of services that can better meet those needs may benefit all maternity care consumers.

Lack of awareness of cultural differences in emotional expression may in part explain CALD maternity care consumers' perceptions of suboptimal interpersonal sensitivity. Some CALD women may not outwardly express pain or distress due to a belief that this is shameful and contradictory to their need to demonstrate an ability to self-manage. Health professionals may be less likely to offer sensitivity to CALD women due to the lack of recognisable signals indicating it would be appreciated [28, 59].

The majority of CALD women in the study reported that they did not have the choice to an interpreter or translator during labour and birth. We acknowledge that our findings concerning interpreter access may have only been relevant for CALD women with limited English proficiency, and the estimated size of the problem may thus have been amplified by our inclusion of CALD women who only identified with a cultural or ethnic group. However, the number of women in our CALD sample who were not born in a non-English speaking country and did not report speaking a language other than English at home does not fully account for the estimated lack of interpreter access identified here. These findings therefore indicate some failure to adhere to requirements within the Queensland Health system to provide clients with fair and equitable access to services through use of professional interpreters [18]. A review of the Queensland Health Interpreter Service revealed that improvements were required in responsiveness, safety, and continuous service [60]. Furthermore, a recent review of the Queensland Language Services Policy 2011 identified lack of staff awareness of the policy, including procedures on working with interpreters, as a significant issue across all areas of government [61]. Poor availability of professional interpreters may complicate the problem, with current services deemed scarce and unsuitable [50]. Current failings within maternity care to provide CALD women with choice of access to interpreters may be improved by addressing staff awareness of relevant policies and interpreter availability.

Half of CALD women were not provided with choice to the gender of their care provider during labour and birth. Although the demand for female health practitioners is often greater than the supply, CALD women should have been asked of their choice while planning their labour and birth in accordance with guidelines for cultural competency [52]. Of the thirteen themes of preferences and needs CALD women identified, only one (blood products) was consistently met all of the time. Potential barriers to the provision of preferences or needs are understandable (i.e., medical implications or limited resources), however, none of the

reported preferences or needs seem particularly taxing. The provision of culturally competent care should incorporate stages of accommodation, negotiation, or explanation for denial, of preferences and needs [40, 52]. The current study did not provide women with an opportunity to report whether they were asked about their preferences or needs, and, in the case that their preferences or needs were not met, whether this had been negotiated or explained by their health practitioner. Future research should address these questions to provide a clearer understanding as to why CALD women's preferences or needs are not being consistently met.

It should be noted that the depth of commentary provided in open-ended responses of this survey was likely limited by the English language proficiency of the respondents, as all women completed the survey in English. Although a phone interpreter service was available, this was not utilised by respondents. Furthermore, the findings should be considered in light of potential differences between CALD and non-CALD women in interpretation of, and meanings attributed to, questions based on cultural norms, understandings, or beliefs. Future studies should conduct more in-depth qualitative work using interpreters or bi-lingual research assistants to get a better sense of the true extent of CALD women's preferences and specific unmet needs.

The 30.4% survey response rate is acknowledged as a potential limitation to the findings presented here. Although the respondent sample was largely representative of all birthing women in Queensland, women aged less than 20 years and those giving birth in public facilities were underrepresented, indicating possible non-response bias and lack of generalisation of findings for these women. As a population-based retrospective study, further limitations include reliance on self-report measures with possible respondent bias influence, and use of secondary data which restricts hypothesis testing and operationalization of variables.

The findings provide a unique comparison of the perspectives of CALD and non-CALD women in Queensland across indicators of perceived safety, quality, and cultural

competency of maternity care in pregnancy, labour and birth, and after birth. A strength of this study is the more inclusive operationalization of CALD identification, which accounted for individuals identifying as CALD on the basis of cultural or ethnic group membership, who are typically overlooked in other research. Studies of inequities in the provision of health care for CALD consumers have previously utilised predominately race- or ethnicity-based identifiers, and as such have excluded cultural group members (such as those from religious groups or those with an impairment or disability) who should be recognised as CALD [62]. The large number of respondents provided findings with the potential to inform the organisation and delivery of maternity care services to CALD women, and a baseline measure for evaluating the effectiveness of current government policies and guidelines. Although Queensland and Australian Governments should be credited for taking steps towards reducing inequalities in health care for individuals from differing cultural, linguistic, or ethnic groups, the findings of this study indicate that there is still room for improvement in the delivery of safe, quality, and culturally competent maternity care for CALD women.

Acknowledgements

The data on which this report is based was collected as part of the Having a Baby in Queensland Survey Program of the Queensland Centre for Mothers & Babies at The University of Queensland. We are grateful to Queensland Government for funding and to the women who provided survey data. The Queensland Registry of Births, Deaths and Marriages contacted women to invite them to participate on behalf of the Queensland Centre for Mothers & Babies to ensure women's privacy was protected. We gratefully acknowledge Dr Rachel Thompson for her conception and design of the Having a Baby in Queensland Survey Program with Associate Professor Miller. We are grateful to Dr Samantha Prosser and the Queensland Centre for Mothers & Babies Survey Program team for their contribution to the design and management of data collection. Anna Voloschenko from the Ethnic Communities Council of Queensland advised on the definition of CALD for application in this research and her contribution is gratefully acknowledged.

Informed Consent

All procedures followed were in accordance with the ethical standards of the responsible committee on human experimentation (institutional and national) and with the Helsinki Declaration of 1975, as revised in 2000. Informed consent was obtained from all individuals who participated in this study.

Conflict of Interest

Yvette Miller declares that she has no conflict of interest. Sarah Mander declares that she is now an employee of Queensland Health, but was not at the time that this research was conducted.

References

1. Australian Commission on Safety and Quality in Healthcare. Australian charter of healthcare rights.2008. http:// safetyandquality.gov.au/wp-content/uploads/2012/01/Charter-PDf.pdf. Accessed 9 April 2014.
2. Allotey PA, Manderson L, Reidpath D. Addressing cultural diversity in Australian health services. Health Promot J Austr. 2002; 13:29-33.
3. Correa-Velez I, Gifford S, Bice S. Australian health policy on access to medical care for refugees and asylum seekers. Aust New Zealand Health Policy. 2005;2:1-12.
4. Henderson S, Kendall E, See L. The effectiveness of culturally appropriate interventions to manage or prevent chronic disease in culturally and linguistically diverse communities: A systematic literature review. Health Soc Care Community. 2011; doi: 10.1111/j.1365-2524.2010.00972.x
5. Murray S, Skull, S. Hurdles to health: Immigrant and refugee health care in Australia. Aust Health Review. 2004;29:25-9.
6. Proctor N. Moving forward together: An international comparison of successful strategies to improve access and equity for people from ethnic minorities. Adelaide: University of South Australia, 2004.
7. Tribe R, Lane P. Working with interpreters across language and culture in mental health. JMH. 2009;18:233-41.
8. Carrillo JE, Green AR, Betancourt JR. Cross-cultural primary care: A patient-based approach. Ann Intern Med. 1999;130:829-34.
9. Willis WO. Culturally competent nursing care during the perinatal period. J Perinat Neonatal Nurs. 1999;13:45-59.
10. Suh EE. The model of cross cultural competence through an evolutionary perspective. J Transcult Nurs. 2004;15:93-102.

11. Small R, Rice PL, Yelland J, Lumley J. Mothers in a new country: The role of culture and communication in Vietnamese, Turkish, and Filipino women's experiences of giving birth in Australia. Women Health. 1999;28:77-101.
12. Dean RG. The myth of cross-cultural competence. Fam Soc. 2001;82:623-31.
13. Gustafson DL. Transcultural nursing theory from a critical cultural perspective. Adv Nurs Sci. 2005;28:2-16.
14. Richardson F, Carryer J. Teaching cultural safety in a New Zealand nursing education program. J Nurs Educ. 2005;44:201-8.
15. Spence DG. Hermeneutic notions augment cultural safety education. Journal Nurs Educ. 2005;44:409-14.
16. Stout MD, Downey B. Nursing, indigenous peoples and cultural safety: So what? Now what?. Contemp Nurse. 2006;22:327-32.
17. Nursing Council of New Zealand. Guidelines for cultural safety, the Treaty of Waitangi and Maori health in nursing education and practice. Wellington: New Zealand; 2005.
18. Queensland Health. Guide to implementing the Queensland multicultural policy 2011 and language services policy in a health context: Attachment A to the Queensland Health guideline for multicultural health policy implementation. 2012. http://health.qld.gov.au/qhpolicy/docs/gdl/qh-gdl-080-att-a.pdf. Accessed 6 March 2014.
19. Queensland Health. Guideline for multicultural health policy implementation. 2012. http://health.qld.gov.au/qhpolicy/docs/gdl/qh-gdl-080.pdf. Accessed 16 Feb 2014.
20. Queensland Health. Working with interpreters guidelines. 2007. http://health.qld.gov.au/multicultural/interpreters/guidelines_int.pdf. Accessed 28 May 2014.

21. Queensland Health. Multicultural clinical support resource: Cultural dimensions of pregnancy, birth, and postnatal care. 2013. http://health.qld.gov.au/multicultural/support_tools/14MCSR-pregnancy.pdf. Accessed 25 Sept 2014.
22. Mander R, Melender H. Choice in maternity: Rhetoric, reality, and resistance. Midwifery. 2009; doi: 10.1016/j.midw.2007.10.009
23. Chalmers B. Cultural issues in perinatal care. Birth. 2013;40:217-19.
24. Chalmers B, Hashi KO. Somali women's birth experiences in Canada after earlier female genital mutilation. Birth. 2000;27:227-34.
25. Hatamleh R, Shaban IA, Homer C. Evaluating the experience of Jordanian women with maternity care services. Health Care Women In. 2013; doi: 10.1080/07399332.2012.680996
26. Henderson J, Gao H, Redshaw M. Experiencing maternity care: The care received and perceptions of women from different ethnic groups. BMC Pregnancy Childbirth. 2013; doi: 10.1186/1471-2393-13-196
27. Raleigh VS, Hussey D, Seccombe I, Hallt K. Ethnic and social inequalities in women's experience of maternity care in England: Results of a national survey. J Roy Soc Med. 2010;103:188-98.
28. Higginbottom G, Safipour J, Mumtaz Z, Chiu Y, Paton P, Pillay J. I have to do what I believe: Sudanese women's beliefs and resistance to hegemonic practices at home and during experiences of maternity care in Canada. BMC Pregnancy Childbirth. 2013; doi: 10.1186/1471-2393-13-51
29. Harriott E, Williams T, Peterson M. Childbearing in U.S. military hospitals: Dimensions of care affecting women's perceptions of quality and satisfaction. Birth. 2005;32:4-10.
30. Johnstone M, Kanitsaki O. An exploration of the notion and nature of the construct of

cultural safety and its applicability to the Australian health care context. J Transcult Nurs. 2007; doi: 10.1177/1043659607301304

31. Green JM. Integrating women's views into maternity care research and practice. Birth. 2012;39:291-5.
32. Radermacher H, Feldman S. Review of literature concerning the delivery of community aged care services to ethnic groups: Mainstream versus ethno-specific services: It's not an either or. Victoria: Ethnic Communities Council of Victoria; 2008.
33. Schouten BC, Meeuwesen L. Cultural differences in medical communication: A review of the literature. Patient Educ and Couns. 2006;64:21-34.
34. Flores G. The impact of medical interpreter services on the quality of health care: A systematic review. Med Care Res Rev. 2005;62:255-99.
35. Goodman P, Mackey M, Tavakoli A. Factors related to childbirth satisfaction. J Adv Nurs. 2004;46:212-9.
36. Hennegan J, Redshaw M, Miller Y. Born in another country: Women's experience of labour and birth in Queensland, Australia. Women and Birth. 2014; doi: 10.1016/j.wombi.2014.02.002
37. Brach C, Fraser I. Can cultural competency reduce racial and ethnic disparities? A review and conceptual model. Med Care Res Rev. 2000;57:181-217.
38. Dragan A. The importance of addressing linguistic ethno-cultural diversity in the delivery of public health services: A literature review. Queensland, Australia; 2009.
39. Karliner LS, Jacobs EA, Chen AH, Mutha S. Do professional interpreters improve clinical care for patients with limited English proficiency? A systematic review of the literature. Health Serv Res. 2007;42:727.
40. Queensland Health. Guide to informed decision-making in healthcare. 2012. http://health.qld.gov.au/consent/documents/ic-guide.pdf. Accessed 11 Sept 2014.
41. Carolan M. Pregnancy health status of sub-Saharan refugee women who have resettled

in developed countries: A review of the literature. Midwifery. 2010;26:407-14.

42. Murray L, Windsor C, Parker E, Tewfik O. The experiences of African women giving birth in Brisbane, Australia. Health Care Women. 2010;31:458-72.
43. Miller YD, Thompson R, Prosser SJ, Armanasco A, Porter J. The having a baby in Queensland survey 2012. 2012. http://www.qcmb.org.au/media/pdf/2012SingletonSurvey.pdf. Accessed 5 Feb 2014.
44. Miller YD, Thompson R, Prosser SJ, Armanasco A, Porter J. The having a baby in Queensland survey 2012 [Data file]. 2013. Available from http://www.qcmb.org.au/survey_program_accessing_survey_data
45. Prosser SJ, Miller YD, Armanasco A, Hennegan J, Porter J, Thompson R. Findings from the having a baby in Queensland survey. 2013. http://www.qcmb.org.au/reports/menu/publications_downloads. Accessed 2 May 2014.
46. Carey RG, Posavac EJ. Using patient information to identify areas for service improvement. Health Care Manage R. 1982;7:43-8.
47. Small R, Yelland J, Lumley J, Brown S, Liamputtong P. Immigrant women's views about care during labour and birth: An Australian study of Vietnamese, Turkish, and Filipino women. Birth. 2002;29:266-77.
48. Stevens G, Thompson R, Kruske S, Watson B, Miller YD. What are pregnant women told about models of maternity care in Australia? A retrospective study of women's reports. Patient Educ Couns. 2014; doi: 10.1016/j.pec.2014.07.010
49. Correa-Velez I, Ryan J. Developing a best practice model of refugee maternity care. Women and Birth. 2012;25:13-22.
50. Phiri J, Dietsch E, Bonner A. Cultural safety and its importance for Australian midwifery practice. Collegian. 2010;17:105-11.

51. Sandall J, Devane D, Soltani H, Hatem M, Gates S. Improving quality and safety in maternity care: The contribution of midwife-led care. J Midwifery Wom Heal. 2010;55:255-61.
52. Cioffi J. Caring for women from culturally diverse backgrounds: Midwives' experiences. J Midwifery Wom Health. 2004; doi: 10.1016/j.jmwh.2004.01.019
53. Schmied V, Cooke M, Gutwein R, Steinlein E, Homer C. Time to listen: Strategies to improve hospital-based postnatal care. Women and Birth. 2008;21:99-105.
54. Kirkham M. The culture of midwifery in the National Health Service in England. J Adv Nurs. 1999;30:732-9.
55. Bruggemann O, Parpinelli M, Osis M, Cecatti J, Neto A. Support to woman by a companion of her choice during childbirth: A randomized controlled trial. Reproductive Health. 2007;4:1-7.
56. Hodnett E, Gates S, Hofmeyr G, Sakala C. (2006). Continuous support for women during childbirth. The Cochrane Library. 2006;4:CD.003766
57. Sauls D. Adolescents' perception of support during labour. J Perinat Educ. 2004;13:36-42.
58. McKinnon LC, Prosser SJ, Miller YD. What women want: Qualitative analysis of consumer evaluations of maternity care in Queensland, Australia. 2014; doi: 10.1186/s12884-014-0366-2
59. Chalmers B. Cross-cultural comparisons of birthing: Psycho-social issues in Western and African birth. Psychol Health. 1996;12:11-21.
60. Sterling L, Hawes E, Phung H, Wong KY. Client perceptions on the quality of the Queensland Health interpreter service. 2012. http://health.qld.gov.au/multicultural/interpreters/Comm-fb-rep-2012.pdf. Accessed 25 Sept 2014.

61. Queensland Government. Language services policy review. 2014. http://datsima.qld.gov/resources/datsima/culturaldiversity/publications/lsp-review-report.pdf. Accessed 25 Sept 2014.
62. McEldowney R, Connor MJ. Cultural safety as an ethic of care: A praxiological process. J Transcult Nurs. 2011; doi: 10.1177/104365961141439

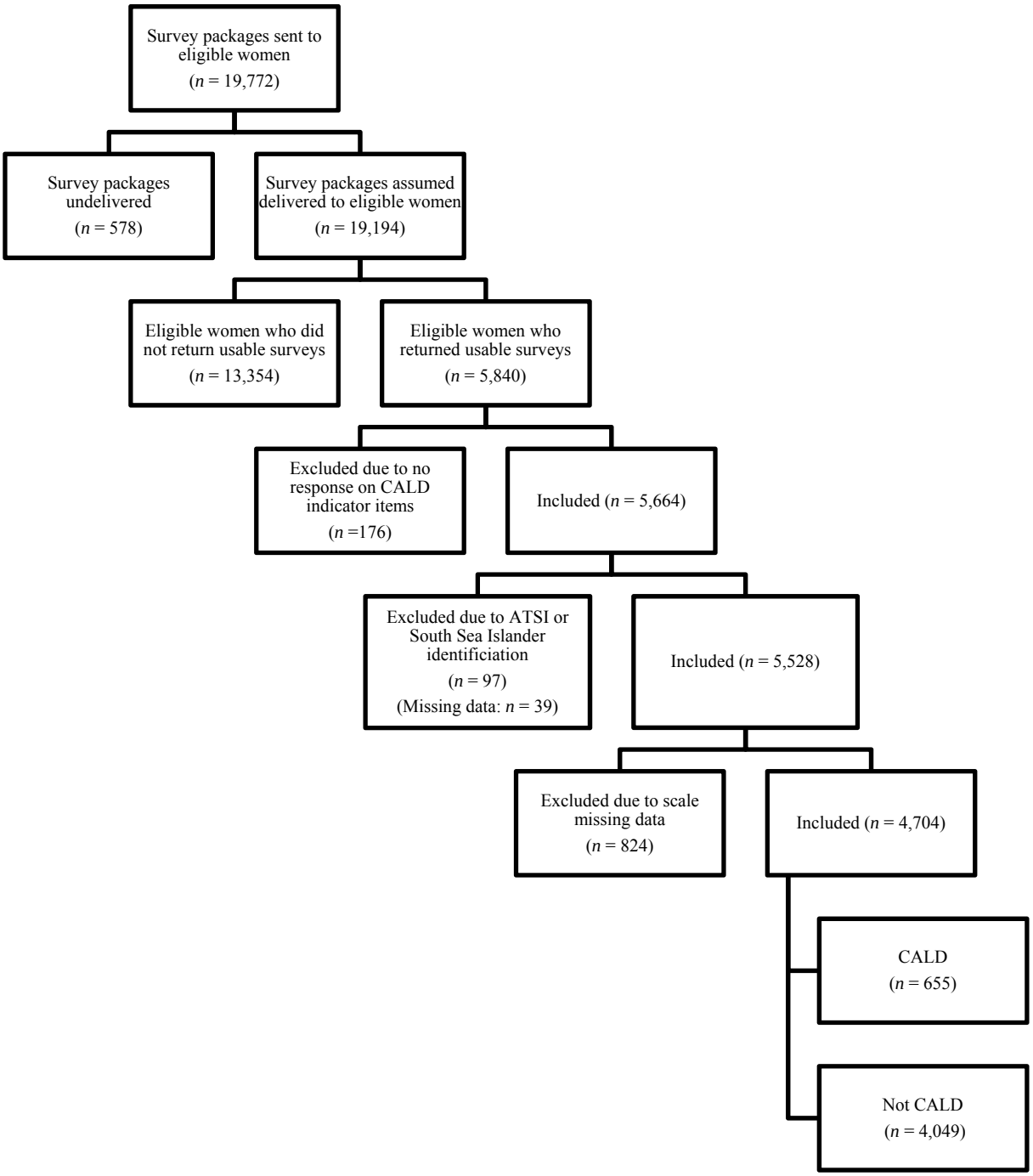

Figure 1. Flow of respondents through each stage of study exclusion.

Table 1. Comparison of Characteristics of CALD and non-CALD Women

Characteristic	All Women % (N = 4704)	Not CALD % (n = 4049)	CALD % (n = 655)	$\chi 2(df)$
Parity				5.65(*1*)*
Primiparous	47.2	46.5	51.5	
Multiparous	52.8	53.5	48.4	
Maternal age at birth				14.84(*5*)*
Less than 20	1.7	1.8	1.2	
20-24	10.7	11.0	8.2	
25-29	29.8	30.1	25.2	
30-34	34.8	33.6	38.9	
35-39	18.9	18.4	19.7	
40 and over	4.1	4.0	4.1	
Remoteness				46.76(*4*)***
Major city	63.2	61.2	73.0	
Inner regional	18.5	19.8	10.2	
Outer regional	14.7	14.7	14.0	
Remote/Very remote	2.6	2.7	1.7	
Secondary education				2.61(*1*)
Did not complete	8.03	8.28	6.43	
Completed	91.97	91.72	93.56	
Model of care				15.88(*4*)**
Standard public care	19.2	17.9	19.2	
GP shared care	22.6	21.1	22.3	
Midwifery continuity care	12.4	11.3	13.6	
Private obstetric care	45.5	43.9	35.0	
Private midwifery care	0.2	0.2	0.5	
Plurality				2.91(*2*)
Singleton	98.4	98.4	99.2	
Twins	1.5	1.5	0.8	
Triplets	0.1	0.1		
Participation mode				0.05(*1*)
Mail	79.5	79.5	79.8	
Online	20.5	20.5	20.2	

Note: *$p < .05$; **$p < .01$; ***$p < .001$.

Table 2. Associations between CALD Identification and Suboptimal Perceived Safety of Care

	% receiving suboptimal care	Univariate Models			Multivariate Models[1]			Multivariate Models[3]		
		OR	95% CI	R square %	OR	95% CI	R square %[2]	OR	95% CI	R square %[2]
SAFETY OF CARE										
STAFF TECHNICAL COMPETENCE										
Pregnancy										
Not CALD	56.10	1.00			1.00			1.00		
CALD	63.50	1.36***	1.15-1.62	0.3, 0.4	1.31**	1.09-1.59	12.3, 16.5	1.30**	1.07-1.59	12.6, 16.8
Labour and birth										
Not CALD	40.30	1.00			1.00			1.00		
CALD	46.30	1.27**	1.08-1.50	0.2	1.19	1.00-1.43	5.0, 6.7	1.17	0.97-1.40	5.2, 7.1
After birth										
Not CALD	61.90	1.00			1.00			1.00		
CALD	64.90	1.14	0.96-1.35	0.3, 0.4	1.07	0.89-1.28	2.4, 3.2	1.02	0.85-1.24	3.4, 4.7
CONTROL										
Pregnancy										
Not CALD	53.90	1.00			1.00			1.00		
CALD	58.60	1.21*	1.02-1.43	0.1	1.16	0.97-1.39	5.1, 6.8	1.13	0.94-1.39	6.2, 8.3
Labour and birth										
Not CALD	61.00	1.00	.88-1.24		1.00			1.00		
CALD	62.10	1.05		0	0.99	0.83-1.19	1.4, 1.9	0.95	0.79-1.15	3.0, 4.0
After birth										
Not CALD	61.60	1.00			1.00			1.00		
CALD	63.40	1.08	.91-1.28	0	1.02	0.85-1.22	2.1, 2.8	0.97	0.81-1.17	5.3, 7.1
OVERALL PERCEIVED SAFETY										
Pregnancy										
Not CALD	26.10	1.00			1.00			1.00		
CALD	34.20	1.47***	1.23-1.76	0.4, 0.6	1.38**	1.14-1.67	4.1, 6.0	1.30**	1.07-1.59	4.7, 6.9
Labour and birth										
Not CALD	27.50	1.00			1.00			1.00		
CALD	33.70	1.34**	1.13-1.60	0.2, 0.3	1.30**	1.08-1.57	2.5, 3.6	1.22*	1.00-1.48	3.1, 4.5
After birth										
Not CALD	29.00	1.00			1.00			1.00		
CALD	36.30	1.40***	1.17-1.66	0.3, 0.4	1.27*	1.06-1.54	3.0, 4.2	1.17	0.96-1.42	3.8, 5.4

Note: OR = Odds Ratio; CI = Confidence Interval.[1]Adjusted for Model of Care.[2]Measures reported are Cox & Snell and Nagelkerke, respectively. [3]Adjusted for Model of Care and Socio-demographic characteristics (parity, maternal age at birth, remoteness, and secondary education).*$p < .05$; **$p < .01$; ***$p < .0001$.

Table 3. Associations between CALD Identification and Suboptimal Perceived Quality of Care

	% receiving suboptimal care	Univariate Models			Multivariate Models[1]			Multivariate Models[3]		
		OR	95% CI	R square %	OR	95% CI	R square %[2]	OR	95% CI	R square %[2]
QUALITY OF CARE										
COMMUNICATION										
Pregnancy										
Not CALD	38.80	1.00			1.00			1.00		
CALD	41.70	1.12	0.95-1.33	0	1.04	0.87-1.25	6.1, 8.2	1.05	0.87-1.27	6.8, 9.3
Labour and birth										
Not CALD	35.10	1.00			1.00			1.00		
CALD	51.10	1.17	.99-1.39	0.1	1.11	0.93-1.33	2.6, 3.6	1.10	0.91-1.33	3.4, 4.7
After birth										
Not CALD	49.70	1.00			1.00			1.00		
CALD	51.10	1.06	.90-1.25	0	0.99	0.83-1.18	2.2, 2.9	0.95	0.79-1.14	3.7, 4.9
INTERPERSONAL SENSITIVITY										
Pregnancy										
Not CALD	59.00	1.00			1.00			1.00		
CALD	65.50	1.32**	1.11-1.57	0.2, 0.3	1.24*	1.03-1.50	5.7, 7.7	1.22*	1.01-1.50	6.3, 8.5
Labour and birth										
Not CALD	49.10	1.00			1.00			1.00		
CALD	58.50	1.46***	1.23-1.72	0.4, 0.6	1.35**	1.13-1.61	3.2, 4.3	1.34**	1.11-1.61	4.0, 5.4
After birth										
Not CALD	69.00	1.00			1.00			1.00		
CALD	73.70	1.26*	1.05-1.52	0.1, 0.2	1.21	1.00-1.47	2.5, 3.6	1.11	0.91-1.36	4.2, 5.9
RESPECT										
Pregnancy										
Not CALD	30.10	1.00			1.00			1.00		
CALD	32.10	1.10	.92-1.31	0	1.01	0.83-1.22	5.7, 8.2	1.01	0.83-1.23	6.2, 8.8
Labour and birth										
Not CALD	26.70	1.00			1.00			1.00		
CALD	30.20	1.19	.99-1.42	0.1	1.15	0.95-1.40	2.9, 4.2	1.14	0.93-1.39	3.5, 5.2
After birth										
Not CALD	41.50	1.00			1.00			1.00		
CALD	42.30	1.03	.87-1.22	0	0.98	0.82-1.18	2.3, 3.0	0.94	0.78-1.13	3.4, 4.5
OVERALL QUALITY OF CARE										
Pregnancy										
Not CALD	30.60	1.00			1.00			1.00		
CALD	36.00	1.28**	1.08-1.52	0.2	1.19	0.99-1.45	9.3, 13.2	1.21	0.99-1.45	10.0, 14.2
Labour and birth										
Not CALD	24.90	1.00			1.00			1.00		
CALD	27.60	1.15	.95-1.40	0	1.06	0.87-1.30	4.1, 6.1	1.05	0.85-1.30	4.5, 6.7
After birth										
Not CALD	44.30	1.00			1.00			1.00		
CALD	50.10	1.26**	1.07-1.49	0.2	1.18	0.98-1.40	4.1, 5.5	1.18	0.98-1.41	5.3, 7.1

Note: OR = Odds Ratio; CI = Confidence Interval.[1]Adjusted for Model of Care.[2]Measures reported are Cox & Snell and Nagelkerke, respectively. [3]Adjusted for Model of Care and Socio-demographic characteristics (parity, maternal age at birth, remoteness, and secondary education).*$p < .05$; **$p < .01$; ***$p < .0001$.

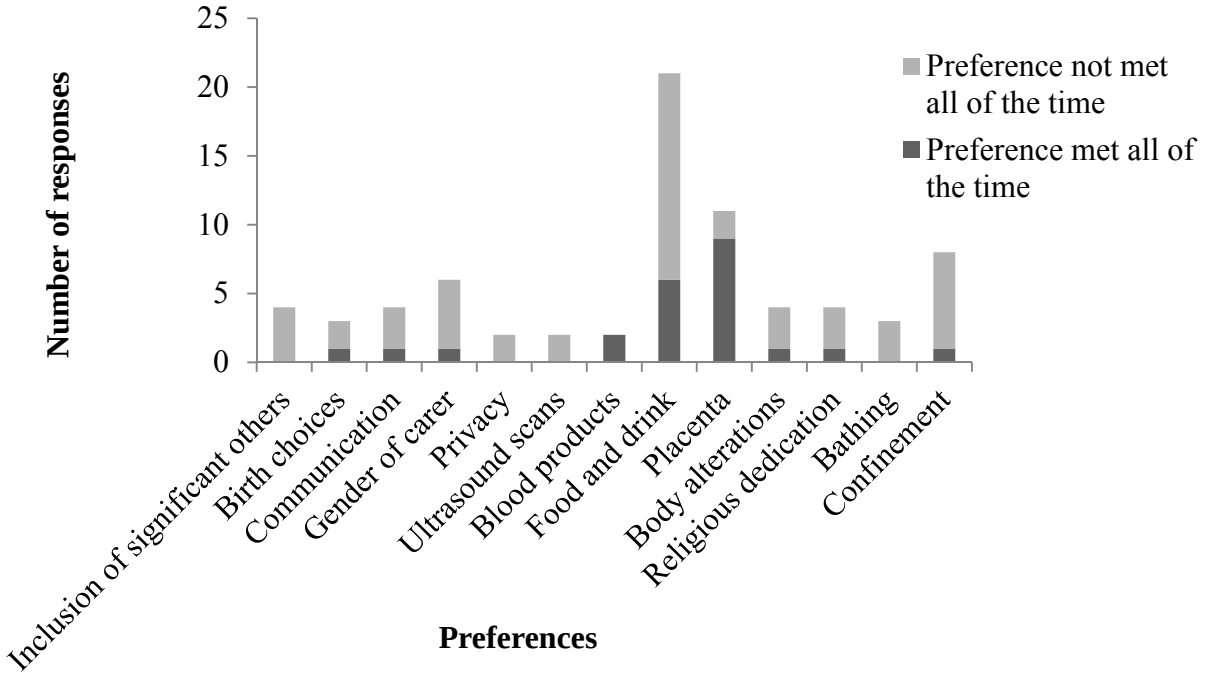

Figure 2. Number of responses indicating needs were met all of the time or were not met all of the time, for each preference reported.